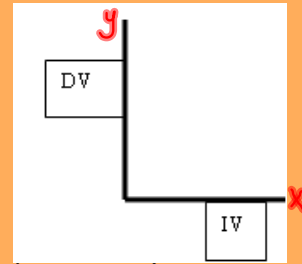


Chapter 4
Modeling Functional
Relationships

Section 4.1
Tables, Graphs and
Connections

REVIEW



Dependent and Independent Variables

(Y) Dependent -- a variable in an expression whose value depends on the independent variable.

(X) Independent -- A variable that is not affected by any other variables with which it is compared.



Marks depend on how much time you spend studying

INDEPENDENT

Number of plants in a garden depends on the length of your garden

For Example:

Some students collected data comparing the amount of time spent at a video arcade with the amount of money spent. Their data are shown in the table:

Amount (\$)	1.25	1.75	2.00	2.50	3.00	3.25	3.50	4.00
Time (min)	45	60	60	100	140	130	140	140

Dependent Variable -- The one that is affected by other factors in a relationship - Amount \$

The amount of money you spend depends on how much time you spend in the arcade.

Independent Variable -- The one that affects the other factors in a relationship - Time

Amount of money affects how much time you get to stay in the arcade.

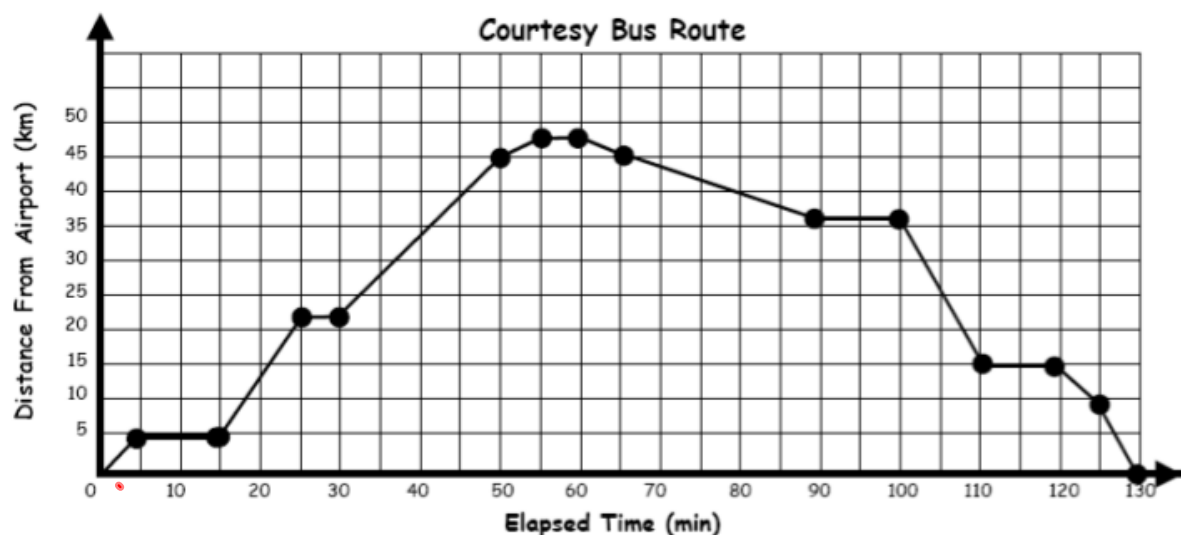
The amount of money is what matters...if you run out of money you can't spend any more time in the arcade.

FOCUS A
Creating a Broken-
Line Graph
Pg.157

Broken-Line Graphs

A broken-line graph is a graph which is formed by joining data points with line segments. Broken-line graphs tell a story.

Allan landed at Halifax International Airport and took the hotel courtesy bus to his hotel. The graph below shows the distance of the bus from the airport over time. It also shows that the speed of the bus varied as it traveled along its route. These data are shown with a **broken-line graph**.



- What do the points represent?
- Describe the resulting appearance of the graph.
- • What does the highest point on the graph represent?

1) You can find the slope of the line between any two times on the graph of the bus trip.

a) What does the slope represent?

b) How can you use the slope to describe the movement of the bus?

2) If you look at the first half of the courtesy-bus graph, most of the slopes are positive. The slopes for the second half are mostly negative. What does this tell you about the trip?

Chapter 4 - Tables, Graphs and Connections

"A picture is worth a thousand words." **Graphs are a picture of data.**

In this chapter you will investigate how to create and interpret the "story" graphs are telling.

- Speed represents the change of distance over time
- Velocity is speed with a direction
- A negative velocity indicates a movement in the opposite direction.

Slope = Speed (m = "rate" of speed)

Walking Slowly (Least steep)



Walking Normally



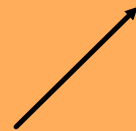
Walking Quickly (Steepest)



Stops

$m = 0$

Positive Slopes have lines that are in an upward direction



Negative Slopes have lines that are in a downward direction



Classwork/Homework

→ Pg.158 #5 and 6

(Use graph paper for #5 and don't forget to label each axis)